

S-NA-P [Pittsburg]

A REVIEW OF HINDE'S ANnelid JAWS
FROM THE SILURIAN AT DUNDAS, ONTARIO

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Hinde (1879) described a series of scolecodonts, fossil annelid jaws from the the Clinton and Niagara Formations at Dundas, Ontario, Canada and stated that the two horizons were separated vertically about 200 feet on the escarpment. The stratigraphic section described by Hinde is difficult to compare with the outcrops in the vicinity of Dundas or with the recent publication by Bolton (1957) that included this area. Hinde mentioned a 'dark bituminous, soft shale' (p. 371) of Niagaran age as the upper collecting locality. The thin interbed in the Eramosa member of the Lockport Formation would appear to be the only shale that would fit his description. Eller (1944) described a series of scolecodonts from the Manitoulin Formation in the valley of Spencer Creek at Dundas. It was suggested in the paper that this might be the horizon where Hinde found his annelid jaws. This horizon, called the Clinton Formation by Hinde and described by him (p. 371,381) as a "hard grey sandstone and soft shales with surfaces showing the usual worm-tracks" is probably the Manitoulin Formation. At the Spencer Creek locality the Manitoulin consists of calcareous shales, limestones with shale partings, in the lowest part.

Hinde figured 13 species from these two horizons. Of these forms the jaws of five species are either incomplete or have so much of the specimen hidden in the matrix that identification cannot be made. An example is *Eunicites clintonensis* Hinde, fig. 21, where only the outer margin bearing the denticles is visible. Most of the jaw is covered with matrix. It is possible that the form could belong to the genus *Lumbriconereites* and be similar to *Lumbriconereites basalis* Hinde, fig. 22. Eller (1940) illustrated the side view as well as the upper and lower sides of *Lumbriconerites hubbardi*, which is similar to *Lumbriconereites clintonensis* and demonstrates the need to see the complete specimen.

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An examination of the type specimens suggests the probability that the illustrations were made by a delineator and that the descriptions were based on the drawings and not the specimens.

Genus *Eunicites* Ehlers, 1868

Genus and Species Indeterminate

Eunicites clintonensis Hinde, 1879; 381, pl. 19, fig. 21.

Only the outer margin of the jaw bearing the denticles is visible, which makes identification impossible. The form could belong to one of several genera.

Eunicites coronatus Hinde

Eunicites coronatus Hinde, 1879; 381, pl. 20, fig. 9.

Not enough of the jaw is present to warrant description. The specimen is a fragment of an inner margin and might be referred to several genera.

Eunicites chiromorphus Hinde 1879

Eunicites chiromorphus Hinde, 1879; 381, pl. 20, fig. 10.

The illustration gives the impression that the jaw is fairly complete. This is not a true interpretation since one surface of the jaw is missing and the outer margin of the remaining side is broken. Not enough of the jaw is present to be of use.

Genus *Oeononites* Hinde, 1879

Oeononites amplus Hinde, 1879

Oeononites amplus Hinde, 1879; 382, pl. 19, fig. 23.

The specimen is probably the free margin bearing the denticles of a jaw that is mostly concealed in the matrix. A description will not be attempted.

Oeononites fragilis Hinde, 1879

Oeononites fragilis Hinde, 1879; 382, pl. 20, fig. 3.

This form is badly crushed and broken and not enough of the specimen is present to warrant description.

Genus *Nereidavus* Grinnell, 1877

Nereidavus infrequens (Hinde)

?*Oeononites infrequens* Hinde, 1879; 382, pl. 20, fig. 2.

Except for a few details the illustration is fairly similar to the type

specimen. Most of the differences are found in the posterior area. An examination of the specimen reveals two heavy ridges separated by a concave area. These structures are no doubt reflected in a fossa on the opposite side of the jaw. The posterior extremity and a portion of the adjacent inner margin may be missing. Most of the denticles are not upright but are directed slightly backward. *Nereidavus infrequens* (Hinde) is similar to a number of species of the genus *Nereidavus*.

Genus *Staurocephalites* Hinde, 1879

Staurocephalites niagarensis Hinde

Staurocephalites niagarensis Hinde, 1879; 383, pl. 20, fig. 1.

With the exception of some minor differences the illustration is similar to the type specimen. The form as a whole is not as angular as shown in the drawing but gently curved, especially the margin bearing the denticles. The anterior margin is at a greater angle with the lateral margins than the illustration shows. Because of this longer and more acute anterior margin and area the specimen is actually longer than the impression given by the drawing. In the figure the teeth are depicted as being sharp-pointed and triangular in shape. Actually they are well rounded and backward-directed. A narrow fossa extends the full length of the jaw. A number of forms of the genus *Staurocephalites* are similar to the genotype *Staurocephalites niagarensis* Hinde. *Staurocephalites dentatus* Stauffer (1933), *Staurocephalites pyramis* Eller (1955, 1964), *Staurocephalites kozlowskii* (Kielan-Jaworowska, 1961), and *Staurocephalites cristata* (Kielan-Jaworowska, 1961) are examples.

Genus *Arabellites* Hinde, 1879

Arabellites elegans Hinde

Arabellites elegans Hinde, 1879; 382, pl. 20, figs. 5, 7.

The specimen represented by fig. 5 is badly damaged and of little value, while the specimen shown in fig. 7 is in good condition. The illustration, however, is unlike the specimen in a number of ways. The large, sharp-pointed hook or fang is wide at its base, curves broadly, and points in a backward direction. The denticles are large and the first seven are hooked and directed backwards. The remaining four teeth seem to be flattened on top. The drawing shows the posterior end of the jaw to be narrow, while actually it is wide and truncate.

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Arabellites elegans Hinde is typical of the genus and is similar to a number of species of *Arabellites*.

Genus *Lumbriconereites* Ehlers, 1868

Lumbriconereites basalis Hinde

Lumbriconereites basalis Hinde, 1879; 383, pl. 19, fig. 22.

There are a number of differences between the figure of *Lumbriconereites basalis* and the type specimen. Most of the errors occur in the anterior area of the jaw. The first denticle or fang is much wider than in the illustration and thus is actually not as long as shown. The object at the base of the first denticle shown in outline has the appearance of a tooth but really is matrix. This material covers part of the posterior edge of the fang, which causes it to appear narrow. Except for a small third denticle the teeth are large, sharp-pointed, triangular in shape, backward-directed and decrease in size gradually to the blunt posterior extremity. The shank is wider than the drawing shows and has a crescent-shaped bight on the posterior margin.

Lumbriconereites basalis Hinde (1879) is similar in a general way to the following forms: *Lumbriconereites austini* Foerste (1888), *Lumbriconereites crenatus* Stauffer (1933), *Lumbriconereites cooperi* Eller (1938, 1961), *Lumbriconereites hubbardi* Eller (1940), *Lumbriconereites johnsoni* Eller (1945), *Lumbriconereites definitus* Eller (1946), *Lumbriconereites jugosus* Eller (1964), *Lumbriconereites latifrons* Eller (1964).

Lumbriconereites triangularis Hinde

Lumbriconereites triangularis Hinde, 1879; 383, pl. 20, fig. 4.

This specimen seems to be more broken than shown in the illustration, although it is possible that it was damaged after the drawing was made. The illustration shows a flange on the right side of the jaw that extends about halfway to the anterior end. This structure is not a flange but part of the margin in which the anterior section is missing. The form is similar to a number of species of *Lumbriconereites*.

Genus *Leodicites* Eller, 1940

Leodicites similis (Hinde)

Arabellites similis Hinde, 1879; 383, pl. 20, fig. 8.

The type specimen and the illustration resemble each other quite closely. As a whole the jaw is wider than in the drawing, especially

in the posterior half. The bight is more crescent-shaped than shown and the outer margin is not as straight. Hinde lists, and the illustrations show, ten denticles. Actually there are twelve. The denticles are oblique or nearly perpendicular to the surface of the jaw. The first and second teeth are probably much longer than depicted in the drawing. *Leodicites similis* (Hinde) is similar to a number of species of the genus.

Leodicites armatus (Hinde)

Lumbriconereites armatus Hinde, 1879; 383, pl. 20, fig. 6.

Part of the posterior end of the jaw is missing from this form and the outer margin is incorrectly illustrated. The margin bearing the denticles is probably half again as long as is shown and would bear at least six more denticles. These teeth would decrease in size to the posterior end. An examination of the type specimen shows the outer margin to be more rounded from the anterior end and then slightly incurved to form a wide club-shaped shank. The bight formed by the shank and the inner part of the jaw is smaller and more indented than shown by the illustration. *Leodicites armatus* (Hinde) resembles *Leodicites altilis* Eller (1955) and *Leodicites fluctuosus* Eller (1964) in a general way.

Leodicites sp.

Glycerites calceolus Hinde, 1879; 384, pl. 20, fig. 11.

Hinde (1879) described the genus *Glycerites* as "jaws consisting of a simple curved hook with a wide base, without smaller teeth, resembling those of the existing genus, *Glycera*." An examination of the type specimen shows that the posterior end of the jaw is missing and thus causes it to appear truncate. A very definite break on the jaw may be seen. Also along the inner edge in the wide fossa is a series of depressions that represent the hollow interior of a series of denticles. It follows that the form does not fit in the genus *Glycerites*. The broken edge at the posterior end is not wide and suggests that the jaw continued narrowly to an acute posterior end. It probably bore five or six denticles. Since the jaw is broken and the denticles cannot be described a specific identification will not be made.

Genus and Species Indeterminate

Hinde figured several forms, pl. 19, figs. 17-20, which he did not attempt to identify. These specimens are fragments of jaws and cannot be used.

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